ITS Field Operational Test Summary

International Border Electronic Crossing (IBEX)

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Introduction

The IBEX ITS Field Operational Test demonstrates an electronic border clearance system to accelerate commercial vehicle traffic through the Otay Mesa, California, international port facility. The primary objective of the project is to develop and demonstrate critical ITS components of an integrated service that will allow selected vehicles to pass through international border check points with expedited inspections or without stopping.

The system has been in operation since September 1996. Evaluation data collection will continue through January 1998. The final report is expected in March 1998.

Project Description

The goal of the IBEX FOT is to deploy ITS technologies as part of an integrated system designed to expedite the processing of commercial freight movements at international land borders. As part of the International Border Clearance (IBC) Program, the Federal Highway Administration (FHWA) has worked with the system developer to implement an electronic border crossing system. The system, in cooperation with the US Treasury's North American Trade Automation Prototype (NATAP) program, aims to significantly reduce the delay incurred by commercial vehicles at international points of entry.

Shippers and carriers conducting international freight movements incur significant burdens because of the administrative processes that they must follow when entering and exiting the US at international border crossings. The international trade community and government officials responsible for customs, immigration, and transportation must execute a complex set of transactions and inspections in order for vehicles, drivers, and cargo to legally and safely cross from one country into another. Because a large portion of these transactions are conducted manually, the time required to process an individual shipment can be significant. At land ports, such as the Otay Mesa, CA border facility, commercial vehicle traffic volume has grown to the point where lengthy processing delays are commonplace. These delays impact the trade community by increasing costs and adversely affecting the efficiency of operations.

The IBEX system addresses these delays by providing for the electronic exchange of customs, immigration, and transportation data between the trade community and the appropriate regulatory agencies. Using electronic vehicle logs, on-vehicle sensors, and electronic cargo seals, the system provides the capability to store and forward carrier, vehicle, and cargo information. Figure 1 presents an overview of the IBEX system.

As an enrolled vehicle passes the *advance* reader location at the approach to the border crossing inspection/processing compound, the IBEX system electronically screens it using dedicated short-range communications (DSRC). The system reads carrier, vehicle and cargo identification data, in the form of a trip/load number, from a transponder installed in the vehicle cab. IBEX forwards this information through the Traffic Facility Integrated Communications (TRAFIC) system to the NATAP system. When the vehicle reaches the US Customs primary inspection point, the

decision reader reads the transponder a second time. This action prompts the TRAFIC system to relay information received about the carrier from the NATAP system to the display in the customs primary inspection booth. The NATAP information consists of immigration and trade related documentation regarding the status of the carrier, driver and cargo. Based on the information provided to the customs inspector, customs inspectors instruct the driver to proceed either to the compound exit or to a secondary, more detailed inspection. The customs inspectors relay these instructions to the driver via a red or green signal displayed both on the transponder and on a traffic signal adjacent to the primary inspection booth. The system reads the transponder a third and final time as the vehicle reaches the exit of the compound. If all inspections have been completed satisfactorily, and all required documentation is in order, the system gives the driver a green light to exit the compound.

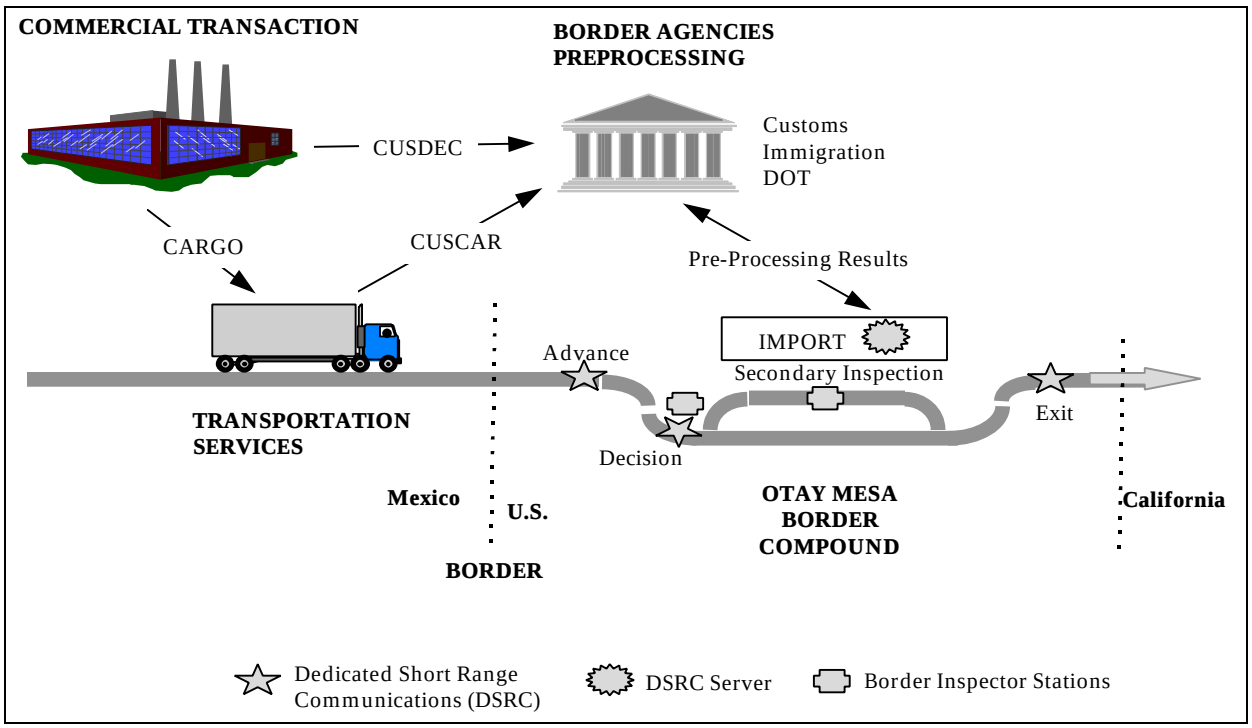

Figure 1: IBEX System Overview

The evaluation focuses on four goal areas:

- Document the technical performance of the IBEX technologies at the component level
- Determine the user acceptance of the IBEX services and technologies
- Evaluate the potential impacts of the IBEX services and technologies to the transportation processes for international movement of commerce and evaluate the interfaces with the trade community
- Document transportation institutional issues and lessons learned.

Test Status

The TRAFIC system and all associated DSRC components have been operational since May 1997. The on-vehicle brake sensors have undergone some system development testing. Evaluation data collection will be completed in February 1998, with the final report expected in

March 1998.

Test Partners

Federal Highway Administration

CALSTART

Signal Processing Systems (SPS)

California Department of Transportation

California Highway Patrol

CASAS International

Sony

References

None